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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,277	03/26/2004	Frits Goedegebuur	GC794-2	8580
5100 7590 10/04/2007 GENENCOR INTERNATIONAL, INC. ATTENTION: LEGAL DEPARTMENT 925 PAGE MILL ROAD PALO ALTO, CA 94304			EXAMINER CHOWDHURY, IQBAL HOSSAIN	
			ART UNIT 1652	PAPER NUMBER
			MAIL DATE 10/04/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/810,277

Applicant(s)

GOEDEGEBUUR ET AL.

Examiner

Iqbal H. Chowdhury, Ph.D.

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 2, 5-16, 18, 19 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-417, 20, 22-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Application Status***

In response to a previous Office action, a non-final requirement (mailed on 1/8/2007), Applicants filed a response and amendment received on 7/6/2007, amending claims 1, 3-4, 17 and adding new claims 20-23 is acknowledged. Claims 2, 5-16 and 18-19 remain withdrawn as encompassing nonelected inventions.

New claim 21 recites the subject matter of Group II of the restriction requirement set forth on 7/3/2006 and thus is also withdrawn as reciting a nonelected invention.

Claims 1, 3-4, 17, 20, and 22-23 are pending and under consideration in the instant Office action.

Applicants' arguments filed on 7/6/2007 have been fully considered but are not deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite and vague for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the present instance, claim 17 recites "non-naturally occurring composition" which is unclear as to the scope of mutants of CBH that are encompassed. It is unclear to the Examiner, how does one determine if a composition never occurs naturally?

***New-Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 34, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashima et al. (Cloning, sequencing, and expression of the cellulase genes of *Humicola grisea* var. *thermoidea*, J Biotechnol. 1996 Oct 1; 50(2-3): 137-47, see PTO 892) in view of de Oliveira et al. (Sequence of *cbh-1* gene of *Humicola grisea* var. *thermoidea*, Nucleic Acids Research, 18(3), p668, 1990). Instant claims are directed to a mature form of polypeptide of SEQ ID NO: 4 and polypeptide of SEQ ID NO: 3 having cellobiohydrolase activity and compositions comprising said polypeptides. Takashima et al. teach a polypeptide from *Humicola grisea* var. *thermoidea* (same species as instant application), which is 99.8% identical to SEQ ID NO: 4 and 3 i.e. only 1 amino acid is different at position H101Y. Takashima et al. teach isolating gene,

Art Unit: 1652

expression and isolating expressed protein. Claim 17 is included in this rejection because a composition comprising said polypeptide is nothing but the recited polypeptide of Takashima et al. Takashima et al. do not teach a histidine (H) residue at position 101 but tyrosine (Y).

de Oliveira et al. teach a polypeptide from *Humicola grisea* var. *thermoidea* (same species as instant application), which is 99.6% identical to SEQ ID NO: 1. de Oliveira et al. further teach a histidine (H) residue at position 101 that is same as instant application. A skilled artisan would clearly desire variants of CBH1 polypeptide because such variant might have stability at high temperature and extreme pH for using in various compositions.

de Oliveira et al. clearly teach that position 101 can alternatively be a histidine residue and keeping cellobiohydrolase activity and one of skilled artisan would wish to make a variant of the sequence of Takashima et al. by changing tyrosine (Y) with histidine (H) based on the teaching of de Oliveira et al.

By combining the teachings of Takashima et al. and de Oliveira et al., it would have been obvious to one of ordinary skill in the art at the time of the invention was made to replace the tyrosine residue of the polypeptide of Takashima et al. with histidine as taught by de Oliveira et al. to make a variant polypeptide having cellobiohydrolase activity.

One of ordinary skill in the art would have been motivated to replace tyrosine residue of the polypeptide of Takashima et al. with histidine residue as taught by de Oliveira et al. as de Oliveira et al. clearly demonstrated that position 101 can alternatively be a histidine residue, wherein a mutagenesis techniques technique can be used to replace said amino acid.

One of ordinary skill in the art would have a reasonable expectation of success because replacing one amino acid with another is well known and widely used in the art.

Art Unit: 1652

Therefore, claims 1, 3-4, and 17 would have been *prima facie* obvious to use one of ordinary skill in the art.

Claims 20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashima et al. (Cloning, sequencing, and expression of the cellulase genes of *Humicola grisea* var. *thermoidea*, J Biotechnol. 1996 Oct 1; 50(2-3): 137-47, see PTO 892) in view of de Oliveira et al. (Sequence of *cbh-1* gene of *Humicola grisea* var. *thermoidea*, Nucleic Acids Research, 18(3), p668, 1990) and Day et al. (US PGPUB 2005/0277172, publication 12/15/2005, claim priority of US application 60/404,063 filed on 8/16/2002). Instant claims are directed to a mature form of polypeptide of SEQ ID NO: 4 and polypeptide of SEQ ID NO: 3 having cellobiohydrolase activity and detergent composition, feedstock composition and feed additive comprising said polypeptides. Takashima et al. teach a polypeptide from *Humicola grisea* var. *thermoidea* (same species as instant application), which is 99.8% identical to SEQ ID NO: 4 and 3 i.e. only 1 amino acid is different at position H101Y. Takashima et al. teach isolating gene, expression and isolating expressed protein. Takashima et al. further teach that said polypeptide is stable at high temperature. Takashima et al. do not teach a histidine (H) residue at position 101 but tyrosine (Y).

de Oliveira et al. teach a polypeptide from *Humicola grisea* var. *thermoidea* (same species as instant application), which is 99.6% identical to SEQ ID NO: 1. de Oliveira et al. further teach a histidine (H) residue at position 101 that is same as instant application.

Day et al. teach a detergent composition, feedstock and feed additive comprising cellobiohydrolase polypeptide.

Art Unit: 1652

By combining the teachings of Takashima et al., de Oliveira et al. and Day et al. it would have been obvious to one of ordinary skill in the art at the time of the invention was made to make a detergent composition feedstock and feed additive as taught by Day et al. by using the polypeptides of Takashima et al. and de Oliveira et al.

One of ordinary skill in the art would have been motivated to use said variant polypeptide which is highly stable at adverse situation for using in a detergent composition, feed additive and feedstock in order to improving the cleaning function of detergent, feed conversion ratio and/or increasing the digestibility of a cereal-based feed or converting feedstock (biomass) to ethanol by using said polypeptides as compositions.

One of ordinary skill in the art would have a reasonable expectation of success because Day et al. teach a successful method of making a feed additive, detergent composition and feedstock comprising a cellobiohydrolase for use in industry.

One of ordinary skill in the art would have a reasonable expectation of success because replacing one amino acid with another is well known and widely used in the art.

Therefore, claims 20 and 22-23 would have been *prima facie* obvious to use one of ordinary skill in the art.

### ***Conclusion***

No claim is in condition for allowance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Iqbal Chowdhury, Ph.D. whose telephone number is 571-272-8137. The examiner can normally be reached on 9:00-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 703-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1652

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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